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AVE-SESAME PROGRAM FOR THE REEDA SYSTEM

FINAL REPORT

Prepared for:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
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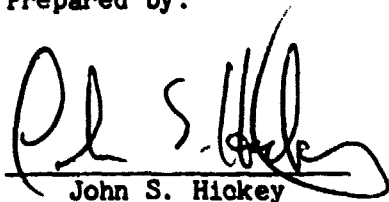
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## PREFACE

This is the Final Report prepared by Atsuko Computing International (ACI), under Contract NAS8-33844 for the Space Science Laboratory of Marshall Space Flight Center. The NASA technical monitor for this contract is Dr. Gregory S. Wilson (ES84).

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## **ABSTRACT**

This report describes the AVE-SESAME Software developed by ACI on the REEDA System Computer.

This software processes the AVE-SESAME Severe Storm data and generates various statistical and graphical outputs.

## 1. INTRODUCTION

During the past year ACI has been under contract with NASA's Space Sciences Laboratory to complete the design, implementation and system integration testing of the AVE-SESAME Program for the REEDA System.

The initial objective of this project was to modify and improve existing REEDA System software to process the AVE-SESAME Severe Storm data. A sequence of events has been performed by ACI during this contract to accomplish the above objective:

- o Designed, tested, and implemented a random access file system for the AVE storm data.
- o Modified existing AVE/SESAME software to incorporate the random access file input and to interface with new graphics hardware/software now available on the REEDA system.
- o Developed new software to graphically display the AVE/SESAME data in the convention normally used by severe storm researchers.
- o Converted IBM software to AVE/SESAME software systems and interfaced with existing graphics hardware/software now available on the REEDA System.
- o Provided software documentation for existing AVE/SESAME Programs underlining functional flow charts and interacting questions.
- o Processed all AVE/SESAME data-sets in random access format to allow developed software to access the entire AVE/SESAME data base.
- o Modified existing software to allow for processing of different AVE/SESAME data-set types including satellite surface and radar data.
- o Provided FORTRAN and HP-1000 System-level software/documentation to optimize the processing of AVE/SESAME data sets using new operating systems, equipment, and computer-to-computer links within MSFC's Space Science Laboratory.

## 2. SOFTWARE DESCRIPTION

A brief description of the AVE Series Program developed under this contract are as follows:

- o AVE01 -- Processes a User specified AVE magnetic tape and generates a printout of the AVE stations, time and date.
- o AVE02 -- Processes a User specified AVE magnetic tape and generates a printout of the AVE soundings.
- o AVE03 -- Processes a User specified AVE magnetic tape and generates a User selected SKEW T plot.
- o AVE04 -- Processes a User specified AVE magnetic tape and generates a User specified "random access" disc file.
- o AVE05 -- Processes a User specified AVE "random access" disc file and prints a User selected AVE sounding.
- o AVE06 -- Processes a User specified AVE "random access" disc file and generates a User selected SKEW T plot.
- o AVE07 -- Computes average access time for reading an AVE record (1728 words) from a Type 2 "random access" disc file.
- o AVE08 -- Processes a User specified AVE magnetic tape and generates a "Sounding Directory" disc file.
- o AVE09 -- Processes a User specified AVE magnetic tape and "Sounding Directory" file and generate a User specified "Random Access" disc file.
- o AVE10 -- Transfers a User specified random access "type 2" disc file with record length of 1728 words from one disc to another.
- o AVE13 -- Transfers a User specified random access "type 2" disc file with record length of 1728 words from disc to magnetic tape.
- o AVE79 -- Processes a User specified AVE-SESAME '79 Random access data base and generates the following outputs:
  - 1) Printed Sounding
  - 2) SKEW T Plot
  - 3) Wind Speed Plot
  - 4) Wind Direction Plot
  - 5) Wind Vector Plot.

- o AVE80 -- This program is the same as AVE79 with the exception that AVE80 uses Extended Memory Addressing (EMA) to reduce program loading size.
- o AVE81 -- Generates a weather station labeling plot based upon a user specified longitude, latitude and map scale factors.
- o AVE82 -- Generates a 25mb weather station layer plot based upon a user specified pressure level and up to four components.
- o AVELB -- Inter/ace software library to utilize the new graphics hardware/software now available on the REEDA System.

The following AVE60 series programs utilize the new Graphics 1000 software and the HP-2608 printer/plotter, HP-2647 graphics terminal and HP-9872 4-color plotter.

The following is a brief description of the AVE60 series programs:

- o AVE60 -- Processes a user specified AVE-SESAME '79 random access data base and generates user specified outputs via EXEC calls scheduling the appropriate program.
- o AVE61 -- Generates Users specified SKEW T plot on selected output device.
- o AVE62 -- Generates User specified Wind Speed plot on selected output device.
- o AVE63 -- Generates User specified Wind Vector plot on selected output device.
- o AVE64 -- Generates User specified Wind Direction plot on selected output device.
- o AVE65 -- Generates User specified Detailed Printed Sounding.
- o AVE66 -- Generates User specified Station map with up to four variables per pressure level on selected output device.
- o AVE67 -- Generates User specified SKEW T Base map plots on selected output device.